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species, excepting the interesting experiment made by Dr. Bourlier on his farm near Reghaïa, where a few of this species have been successfully grown, conjointly with divers *Acaciæ* and especially with *Mimosæ*.

Desirability of the propagation of such fine species as *Eu. marginata*.

Algeria and Tunisia, which have so far not been blessed with any such treasure.*

Alleged blindness of the public and market to the merits of eucalypti in general.

It is a pity that, with the exceptions mentioned in this paper, the very many merits claimed years ago, and still claimed by some, for eucalypti in general, should remain unrecognized in Algeria and Tunisia by those who have been induced to make the experiment of growing eucalypti for profit. Either the public and the market are blind to the merits of eucalypti, or else the numerous services rendered by these trees are still better rendered by others at present in use for agricultural and industrial purposes, as well as for fuel. It is needless to mention which of these suppositions is the most likely.

On the Remains of the Foreigners Discovered in Egypt by Mr. Flinders-Petrie, 1895, now in the Museum of the University of Pennsylvania.

By Mrs. Cornelius Stevenson.

(Read before the American Philosophical Society, March 20, 1896.)

Before entering upon my subject, I must explain that what information I have with regard to this remarkable collection is mainly derived from private letters received from Mr. Flinders-Petrie last winter at the time of this most brilliant of all his brilliant discoveries, and at intervals since then. Very little has, as yet, been published concerning them. The

* Like the reed of the fable, *Eu. marginata* is flexible and bends readily without breaking. A block of 0.5 metre in length and offering a square section of 0.25 metre bears, before breaking, a weight of 1400 kilogrammes suspended from its middle, 900 kilogrammes being the breaking weight of a ruler of oak of the same dimensions. The resistance of *Eu. marginata* to crushing in the same condition is also greater than that of oak (both woods having the same density), and is 350 kilogrammes to the square centimetre of bearing surface; its tensile strength is remarkable, 890 kilogrammes to the square centimetre. Its resistance to parasites is very great, even the terrible white ant cannot perforate its grain, nor does the *Teredo navalis* cause its prompt destruction, as is the case with other woods used in naval constructions, for *Eu. marginata* has been known to withstand the action of the ship worm for thirty and forty years (E. Lambert, above quoted).

report has not yet appeared, and the only sources of information available are a catalogue of the objects exhibited at University College in London last July; some short articles published by Mr. Flinders-Petrie in the *Times* and in the *London Academy* and reproduced in the *American Journal of Archaeology*, and a leaflet issued by the "Egyptian Research Account" as a brief preliminary report to its subscribers. These with the private letters above referred to form the basis of this paper.

You are aware that last winter Mr. Flinders-Petrie, whilst working in the neighborhood of the villages of Ballas and Nagada—that is some thirty miles north of Thebes (near the twenty-sixth parallel) on the western bank of the river and on the edge of the desert—made some remarkable discoveries.

In this locality were some Mastaba-tombs of the old empire (IVth to VIth dynasties) and a Mastaba-like pyramid, similar in form to that of Sakkara, with a sepulchral chamber scooped out of the sand-bed below, but entirely constructed of natural blocks, selected for size, and in no way tooled or even broken, and therefore probably one of the earliest of such structures.

The Mastaba-tombs likewise offered interesting peculiarities: access to them was obtained through a stepped passage, which sloped down from the north as in a pyramid. Nearly all these tombs had been anciently plundered, and little, save a large number of stone and alabaster vases, was found belonging to their original occupants.

In some of these ancient tombs, however, were discovered burials of strange intruders, the evidences of whose general culture, beliefs and funeral customs show them to have been strangers in the Nile valley. Not a single detail of their culture did they hold in common with the Egyptians. Moreover, their number, which was found to have spread over a considerable portion of upper Egypt, from Abydos to Gebelen, over one hundred miles, whilst their influence was observable from Tenneh to Hieraconpolis, *i. e.*, over three hundred and fifty miles, and the absolute control of the region which they assumed and which is shown by the total absence of any object recalling Egyptian civilization, show them not only to have been invaders, but invaders who once had swept over the region and who, settling down, had lived there for a considerable period, borrowing little or nothing of the people whose land they occupied. As Mr. Petrie wrote in the first outburst of enthusiasm following upon his great discovery: They form "a grand new puzzle and might as well have been found in Siberia or in France for aught of their connection with regular Egyptian antiquities."

This complete wiping out for a time of the Egyptian civilization is one of the most striking features of this remarkable episode, and gives point to Mr. Flinders-Petrie's discovery. In the large number of burials opened "not a god, not a scarab, not a hieroglyph, not an amulet, not an Egyptian bead was found." These people were great pottery manufacturers, and yet, although they settled in a land where the potter's wheel had long

been in common use, all their pottery is hand-made and of form and decoration peculiar to themselves.

An Egyptian town in the immediate neighborhood yielded—in different strata—pottery of the IVth, XIIth, XVIIIth and XIXth dynasties, and presented not one single link with the peculiar manufactures of the intruders. What, then, had become of the Egyptians on this extensive tract of territory and during the considerable period represented by the layers containing variations of the original industries of the invaders?

The kings of the Vth dynasty who ruled over united Egypt were said by Manetho to have come from Elephantine, and vestiges of their power and of that of their successors (VIth dyn.) have been found from the southern frontier of Egypt to the peninsula of Sinai. Even recently, fragments of papyri have been found at Elephantine bearing the names of Rameri and of Noferkara which must be added to the weight of evidence already gathered to show the extent of their empire (*London Acad.*, March 14, 1896). They were powerful monarchs, and, like all of Egypt's strong rulers, they were active in their building enterprises and have left, written on stone, eloquent testimony of their power.

Of their successors, the Memphite kings of the VIIth and VIIIth dynasties, however, nothing remains save a few scarabs bearing names that can be identified with some of those given in the Egyptian lists for that obscure period. Indeed the silence of the monuments is so complete as to become positively eloquent. It is evident that some national catastrophe occurred about that time which caused the dismemberment of the great empire of the pyramid builders and reduced the power of their Memphite successors to comparative insignificance.

Manetho gives five kings for the VIIth Memphite dynasty and twenty-seven for the VIIIth. The Turin fragments give eighteen, and the tablets of Abydos give a selection of fifteen. No doubt can exist, therefore, as to their reigns having occupied a considerable period of time. There is evidence that during the IXth and Xth Herakleopolitan dynasties, Upper Egypt, which—as far as the monumental evidence is concerned—seemed to have been wiped out of existence, reappeared upon the scene of history, and that the princes of Thebes began to assert themselves and to grow in power. Some important inscriptions found by Mr. Griffith in the tombs of the feudal princes of Sift cast a flash of useful light upon this obscure period. These princes, loyal to the kings of the Herakleopolitan dynasty, fought on their side in their wars against the Theban princes, whose increasing pretensions threatened the power of their liege lords. These facts are now all-important in restricting the limits in which must be placed the episode of the foreign intrusion just brought to light by Mr. Petrie's genius. It seems obvious that such an intrusion could not have taken place had the Theban princes been as powerful as they appear to have been under the IXth and Xth dynasties.

That the foreigners entered Upper Egypt after the great period of the pyramid builders is shown by the fact that the Mastaba-tombs referred to

above were usurped by them to bury their own dead. Moreover, in the step-passage of a Mastaba, a burial of the XIIth dynasty was found superimposed upon the remains of the strangers. Here were therefore three well-defined epoch-marking layers, and the fact that brick tombs of the XIIth dynasty were constructed over the ruins of a town occupied by these people, conclusively proves that their presence in Egypt preceded the Middle empire.

Four necropolises and two mud-brick towns extending over an area of five miles yielded the same result as to strata and relative occupancy. It is therefore reasonable to see in this intrusion of a strange race, spreading over so considerable a portion of the Egyptian territory, which it held for so long a period of time exactly coinciding with the monumental break in Egyptian history, if not the explanation of at least an important fact connected with that break; and to venture upon the assertion that a migratory movement of some magnitude took place about 3400 B.C., of which the people whose remains have just come to light formed a portion, and by which the first united Egyptian empire was weakened and brought to an end.

Mr. Petrie, assisted by Mr. Duncan, pursued his investigations at Nagada, whilst Mr. Quibell, working for the "Egyptian Research Account," explored the burials near Ballas, both exploring parties continuing their researches until over 2000 burials were opened and their contents examined and secured. These made it evident that the invaders had long retained their peculiar customs and beliefs: Instead of cutting their tombs in the solid rock as did the Egyptians, they dug their graves in shoals of gravel in the dry water courses of the desert edge; these graves are open square pits of the type of those found at Mycenæ; they were roofed over with wood, and their average dimensions are about 6 x 4 and 5 feet in depth. Their size varies, however, from half to double those here mentioned. Unlike the Egyptians who mummified their dead and laid them stiffly stretched out upon their backs, the body, reduced to a skeleton, here lay in a contracted position turned upon its left side, facing the west, with the head to the south. Every body, or ninety-nine out of a hundred, was found with the head taken off or removed. Short, oblong coffins of coarse pottery, with a lid and resembling a chest, were used. The bodies showed evidence of having been mutilated before burial. In one fine tomb, the bones were heaped in the centre, whilst other bones, the ends of which had been broken off and scooped out as though for marrow, were placed around them. This led Mr. Petrie to suggest that they must have been ceremonial cannibals. In other graves the bones were separated and sorted out.

Large bowls of coarse pottery, such as those exhibited with the coffin, contained ashes, probably of the funeral feast, and Mr. Petrie aptly quotes with reference to this custom 2 Chron. xvi. 14, xxi. 19, and Jeremiah xxxiv. 5, referring to a great burning made at every funeral—a custom probably Amorite. These were placed at the foot, and other jars,

such as may here be seen, and which originally contained liquids—beer, water, etc.—were placed along the sides. As many as eighty vases have been found in one grave, and few interments were provided with less than ten or a dozen. Among these were sometimes found a vase of black incised ware, evidently imported.

Jars of pottery with wavy handles, containing scented fat or its Nile-mud substitute, were placed along the head end, with a rough pointed brown jar in the middle. This type of pottery, which was very common and which gave rise to varieties of forms and uses during the sojourn of these people in the Nile valley, must be regarded as part of their industrial equipment, and is so specialized as to have led Mr. Petrie to suggest that these men were related to the Amorites of Palestine, who used similar pottery and who, he thought, might be another branch of the stock to which these invaders of Egypt belonged.

In bringing these objects to your notice, I am laboring under serious disadvantages and I must claim your indulgence should it so happen that I cannot make all points of detail clear to you. Although the collection reached here early in the winter, lack of proper space to work it up and to display it with safety, prevented my unpacking it until now, and I have not had a chance to study each specimen as it should be studied. This is all the more to be regretted as the material is quite new, and as, for the first time in the course of our much *more* than satisfactory relations, Mr. Flinders-Petrie, owing to pressure of business, was unable personally to superintend the packing, so that I have had very little to guide me in my identifications save my own limited experience and the general indications furnished in Mr. Petrie's letters. The types peculiar to these strangers are, however, as a rule readily recognized.

The main difficulty has been with the alabaster and stone vessels, of which we have a great quantity. These are principally derived from the Mastaba tombs of the old empire, and in sorting them there lies therefore some danger of confusion, especially where, as in the later layers of the invaders, a certain overlapping took place. I have, however, only brought here those specimens of Libyan stone work as to the origin of which I can entertain no doubt: Elongated vases of various dimensions with useless ledge-like feet too small for use, intended to be suspended by means of long tubular handles, a frog of breccia, and various other types which have no Egyptian equivalents. These stone vessels are hand-worked and show no trace of the turning-lathe. The material which I have not been able to determine with certainty must remain until Mr. Petrie's full illustrated report is published, when each group of objects in our collection will, no doubt, find its proper place.

Most of the flint implements now before you are from the invaders—these are oval in shape and equally worked on both sides. There are, however, a few dark weathered flints found upon the top of the limestone plateau, some 1400 feet above the Nile—all of which show signs of a longer exposure than that to which were subjected those flints to which

we know can be assigned more than 5000 years of existence under similar conditions. These are regarded by their discoverer as Palæolithic ; among them are two whitened flints of the pointed type, thickly patinated, also regarded by Mr. Petrie as Palæolithic.

The stone work of these people was, as may be seen, of the very highest order. We have here some flint bangles, one of which is perfectly cut to less than the eighth of an inch in diameter. Some of the finest blades excel not only anything done in that line by the Egyptians, but are unsurpassed by any ancient neolithic workmen. The exquisite regularity of the surface flaking and the fine serrated edge of some of their tools is startling in its perfection. Some forked stone lances used in hunting the gazelle are both curious and beautifully executed, and their numbers show their owners to have been great huntsmen.

It is more than probable that some fine specimens of similar workmanship found in Egypt from time to time and which have been brought into various museums were, in reality, relics of these people. Mr. Petrie has already called attention to a fine blade belonging to General Pitt-Rivers' collection and which is set in a handle of undoubted Egyptian manufacture. This is certainly the adaptation of an older blade.

These interlopers also used copper tools. Other metals such as gold, silver and lead were apparently known to them, although valued as rare products.

In their pottery they seem to have often aimed at reproducing the stone forms common among them, and even at imitating the very substance, such for instance as the limestone breccia, which they copied in splashed pottery, of which we have here a beautiful specimen.

The red polished and the black and red polished wares are the most common manufactures. Animal forms and curious devices were produced. The black and red is very distinctive. This is of the same material as the plain red, but is harder and is given a higher polish. The forms also differ, and are generally remarkable for the elegance of their proportions. According to Mr. Petrie, the black color is due to the "deoxidizing action of the wood ashes in the kiln, reducing the red peroxide to a black magnetic oxide of iron. The brilliant lustre of the black is probably due to the solvent action of carbonyl, due to imperfect combustion, which enables the magnetic oxide to rearrange in a continuous surface."

The effect of this process seems identical with that observed on certain vessels found by Dr. Richter in the lowest stratum of the copper-bronze age in Cyprus and approximately placed by him sometime between 4000 and 3000 B.C. In the collection which we purchased from him some years ago and which contains a part of the results of his own excavations in Cyprus, there is a round bowl to which the above date is assigned, and which is identical in coloring, polish and general effect to this black and red ware ; the form, however, is different from that of any vessel in this collection, and a small perforated handle for suspension on one side would in itself draw attention to a difference in the manufacture. It

would seem from this, however, that the deoxidizing process as systematically applied to red pottery for purposes of decoration was a widespread fashion at that remote period.

Some of the pottery of these strangers was decorated with crude figures of ostriches, antelopes, etc., often represented in long lines, in brown on buff and in red upon a lighter red. A very common decorative motive is a long boat with two cabins, an ensign pole and many oars; sometimes the figure of a man is added. The red polished ware, decorated in white lines, "dents de loup," plants and flowers, etc., is imported from the Mediterranean region. It is stated by Mr. Petrie to occur only in a limited range of the territory occupied by the foreigners, and it gave rise to no varieties of type. The shapes of these vases are also peculiar, especially the specimens in which two or three tall, straight stems or necks arise from one base.

The black incised bowls, with white decoration, in lines and "dents de loup," are also imported. No such pottery is known of Egyptian make, although in later times, during the Middle empire, a style of pottery similar, though much finer, appears. A near approach to it is found in the later Neolithic stations of Italy, Spain and in the lower strata of Hissarlik.

In a paper read before the Anthropological Section of the British Association—a notice of which was published in the *Academy* (September 28, 1895) and in *L'Anthropologie* (October–December, 1895, p. 590)—mention is made of a Neolithic station near Butmir, in Bosnia, recently studied and described by Mr. Radminsky, where pottery was found offering a great variety of decoration, among which, by the way, appears a spiral ornament. Figurines showing some artistic aspirations were also recovered. In the discussion that followed Mr. John Evans expressed the opinion that this station probably belonged to the transition period from the Neolithic to the bronze age. Certain holes cut in the clay reminded Mr. Petrie, who was present, of the sand pits dug in Egypt. He said that the pieces of black pottery exhibited by Mr. Radminsky were absolutely identical with pieces found by himself in Egypt and by others at Hissarlik and in Spain, and that he, therefore, would date such a settlement, by this black pottery, from 3300 to 3000 B.C., when it was generally manufactured (*Anthrop.*, October–December, 1895, p. 560).

Among the small objects in our collection are a number of bone combs and tools, one of which, a puncher, has just been identified by Prof. Cope as the metatarsal of a gazelle. We have also a series of slate pallets upon which Malachite, etc., was ground probably for tattooing purposes. These are in the shape of the turtle and fish, besides more simple forms, such as squares and rhombs; but a larger variety of animal forms has been found, and Mr. Petrie mentions the ibex, elephant and birds among those in his collection.

It is worthy of notice that the taste for symmetry, which prompted the introduction of the double-headed bird design among so many ancient and modern peoples, was already developed among these men, as may be

seen by the handle of a bone implement. Here, however, the double-headed bird is no eagle but an ostrich.

Where was the centre of this culture—whence did these men come into the Nile valley? This must now be the problem which archæologists have to solve. It is the last riddle propounded by the Egyptian Sphinx.

They were a tall, robust race, with strongly marked features and a hooked nose. They wore a long pointed beard and had brown wavy hair, as shown by their representations of the human figure. Altogether they closely approached the type of the Libyans and the Amorites, and probably belonged to the same stock. Mr. Flinders-Petrie calls them Libyans, and Messrs. Evans and Boyd Dawkins corroborate this opinion. By Libyan here is meant a people inhabiting some as yet undetermined region of northern Africa, and representing a branch of the Neolithic culture of southern Europe, although these particular Libyans were just emerging from the Neolithic stage when they invaded Egypt.

The connections which can, through them, be traced with the contemporary Mediterranean civilization are of immense value. Not only do their importations from the Mediterranean region give us interesting glimpses of the active intercourse of nations *inter se* in those early days and reveal it to us as much the same in character and degree as it appears in subsequent ages, but they furnish us with the means of approximately dating certain typical Mediterranean products. As we find these associated in the Mediterranean region with the transition period of the Neolithic culture, it seems that we are more or less safe in regarding 3500 as the likely period of the introduction of metals into the western Mediterranean region.

Not only has Mr. Petrie's splendid discovery filled up what has long seemed a hopeless blank in Egyptian history, but it has furnished science with a solid foundation upon which the prehistoric period of Europe may stand whilst like a coral reef it builds its way up in an effort to reach the surface of history.

Before closing my remarks, I beg to take advantage of this opportunity to acknowledge Mr. Flinders-Petrie's disinterested kindness and liberality in helping us to develop in this city a museum which must prove an educational instrument of the highest value to our people. At a time when we are indebted to him for this priceless collection, it is but proper I think to publicly recognize the constant interest which Mr. Petrie has shown in our effort.

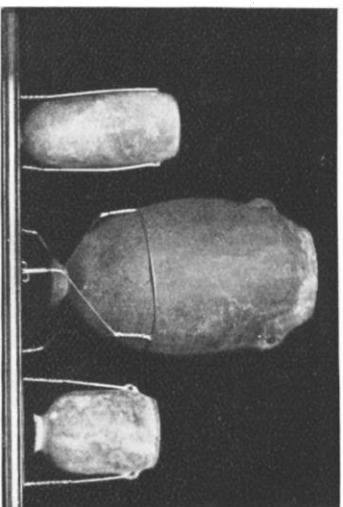
DR. D. G. BRINTON SAID :

The chipped flints which have been exhibited appear to be of widely different ages, those from the tombs showing scarcely any patina, while the two from the surface of the plateau are covered with a thick, white, weather-wearing. Of course, allowance must be made for the constant

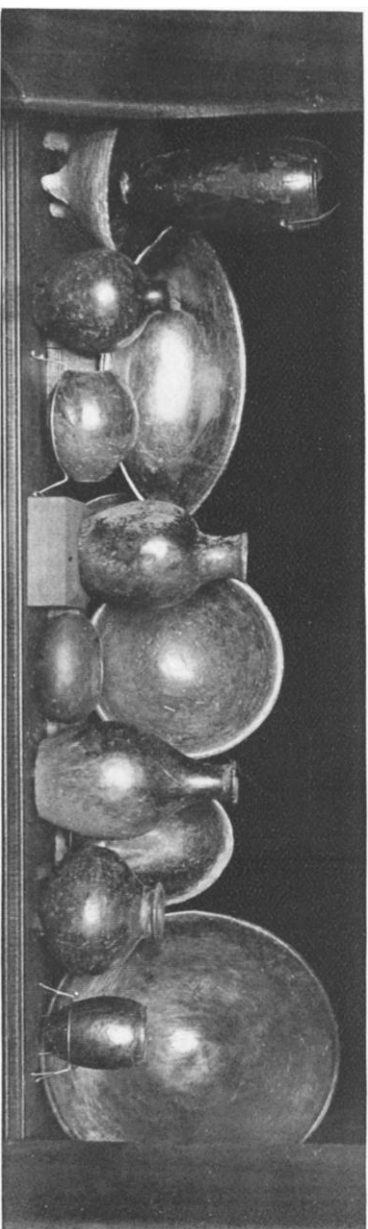
exposure of the latter and the protected condition of the former. But this is not sufficient to account for the marked differences. Moreover, the shape of the plateau implements is distinctly "palæolithic." They are not intended to be hafted, but to be held in the hand when in use. What is further noteworthy about them is that obviously both are adapted to be held in the *left* hand only. So far as they go, they support the theory advanced by some writers that primitive man was less right-handed than later generations.

The pottery and stone articles from the tombs of the so-called "new race" near Abydos are good examples of their arts. I speak of this with some knowledge, as early last August I examined with much care Prof. Flinders-Petrie's immense collection in London, and had the advantage of his personal explanations. The article that I published in reference to it, in *Science* (August, 1895), was I believe the first original report on the subject in any American periodical. That the "new race" was supposed by Prof. Petrie to be Libyan, that is, Berber, attracted me, as the ethnography of that stock has been a special study with me.

This identification, I believe, will finally be established. If we examine the configuration of the Nile valley and its surroundings, no other theory is tenable, providing the Libyan stock extended that far south of the Mediterranean at a date 3000 B.C. We know they did, and much earlier, from their very early presence in east Africa. The invading "new race" could not have come from the east. The natural highways from the Red Sea to that portion of the Nile valley centre at Koptos, and there few or no specimens of this peculiar art have been exhumed. They must necessarily have entered from the west, and a study of the ancient and modern caravan routes leads inevitably to the conclusion that their last previous station must have been the so-called "Oasis magna" of the Libyan desert. This consists of a series of arable depressions in the calcareous Libyan plateau, which here rises to an average height of about 1200 feet. The central portion of the Oasis is about 130 miles westerly from Abydos, and to it a number of caravan routes converge from the north, south and west. So far as history, archæology and linguistics teach us, this group of cases, as well as the "Oasis parva," opposite the Fayoum, and that of Jupiter Ammon, still farther north, have always been peopled by the Libyans. This stock has not been shown to be connected in culture with the Neolithic peoples of western Europe, and no positive traces of the Berber language remain there, though it is probable that the word "Iberian" (from Iberus) indicates their presence in the peninsula of that name. The conclusion which I urge, therefore, is, that the correlatives of the art of the "new race" will be found in the "Oasis magna." That some of the tombs contain Egyptian and even Mediterranean relics is readily explained by the commerce which it is evident from the figures of their boats they soon established on the Nile.



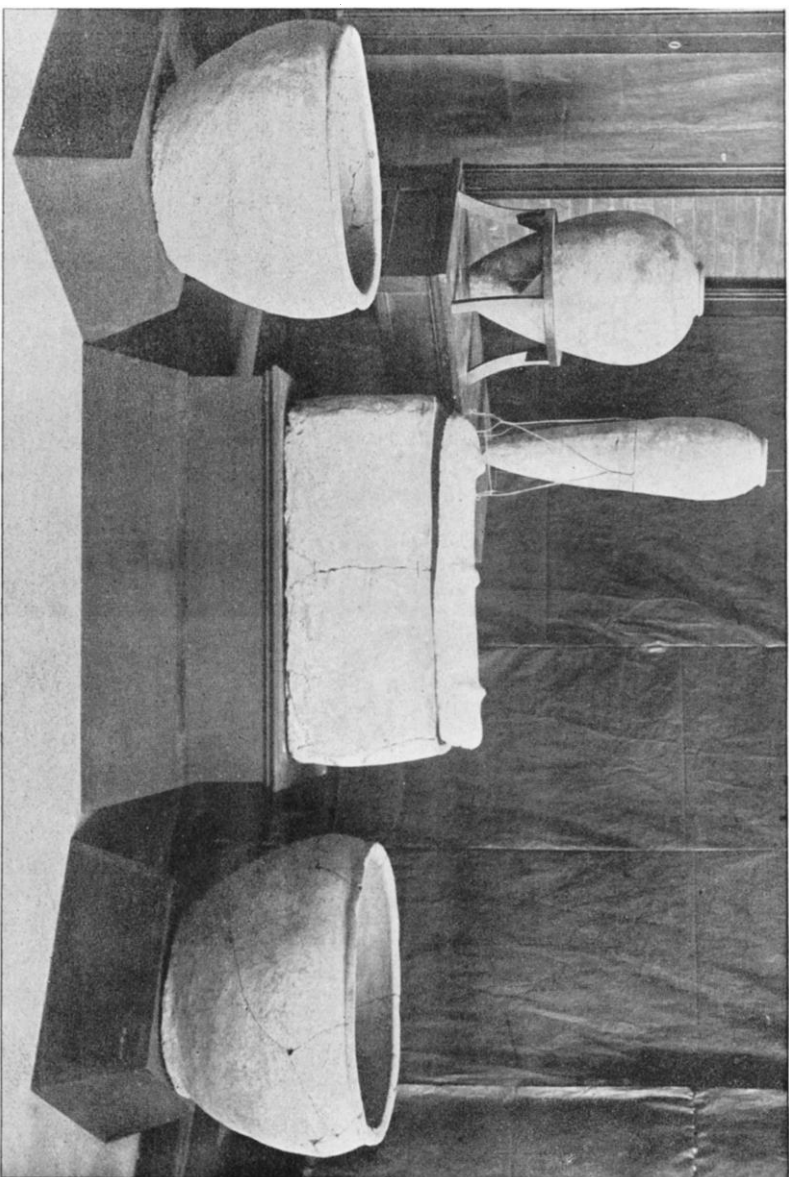
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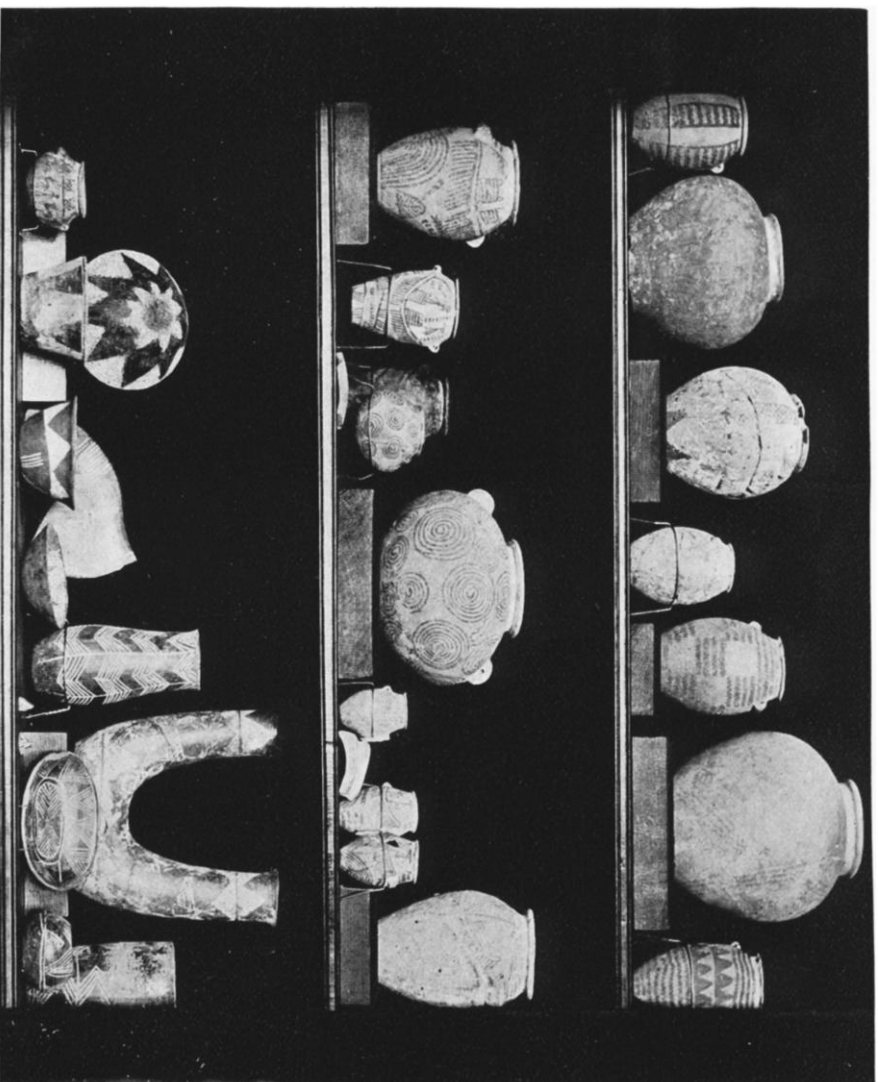
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1.—STONE VASES TYPICALLY LIBYAN.

2.—BLACK AND BLACK AND RED POLISHED POTTERY DISTINCTLY LIBYAN.



COARSE POTTERY, JARS, COFFIN, LARGE BOWLS CONTAINING ASHES FROM THE FUNERAL FEAST.



IMPORTED DECORATED POTTERY FOUND ASSOCIATED WITH LIBYAN DEPOSITS.